

Conference Abstract

Developing a GIS of Hazards for Canadian Cultural Institutions

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Abstract

The Canadian Conservation Institute (CCI) has developed a Geographic Information System (GIS) of hazards for Canadian cultural heritage institutions. The greatly increased access to open data is changing how advisory bodies like the CCI and the public can access and share information.

For the purpose of investigating how a GIS approach can assist the CCI with its mandate to improve the preservation of collections, a map layer of cultural heritage institutions across Canada has been assembled and continues to be upgraded for accuracy, inclusion and detail (Fig. 1). This was combined with a collation of hazard layers; a partial list includes: seismic risk, notably expectations of earthquake severity tied to improvements in the national building code, tsunami exposure, wildfire data, hurricane, tornado, lightning density, pest distribution, and energy use indicators such as heating degree days and climate norm data. The platform allows examination of expectations around climate change driven risks such as sea-level rise, storm-incursions, permafrost melt. The GIS approach will also allow reassessments around expected changes to flood risk maps issued by jurisdictions, as well as Statistics Canada layers on population related factors such as changes in numbers of local populations, income and demographic shifts which can be stressors or opportunities.

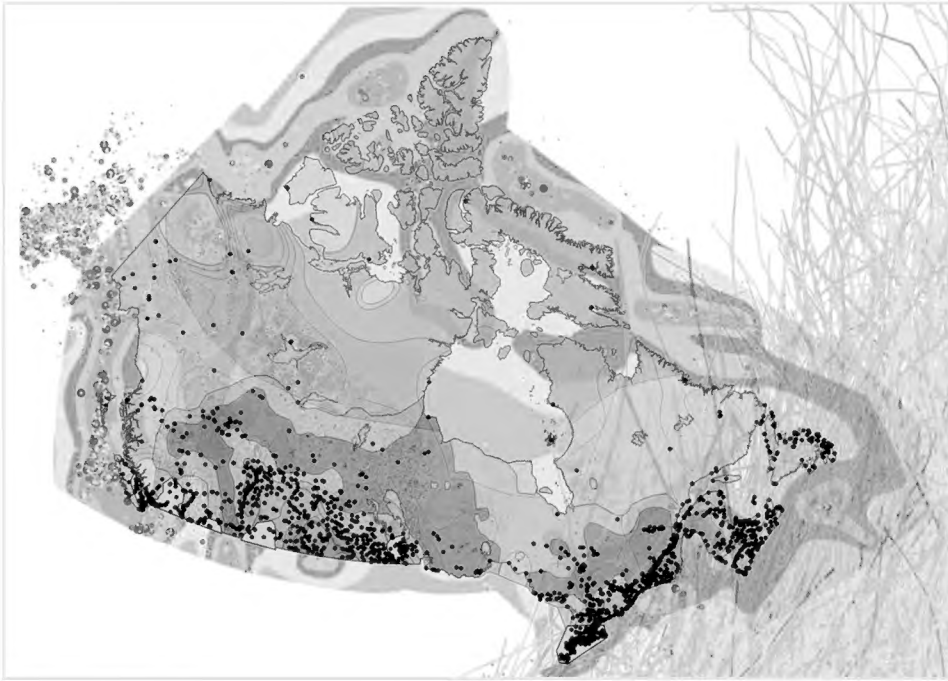


Figure 1.

This figure shows the distribution of Canadian cultural institutions (black points) against a backdrop of seismic, hurricane, tornado, wildfire and structural pest GIS layers. As Canada spans a continent, there is strong variation in the expected likelihood and intensity of these hazards across the population of institutions. Along with quantitative aspects of GIS, visual depiction of these ranges has good educational and interpretive value.

Sources have been drawn from federal, provincial, municipal, and academic evaluations of hazards, which now are more commonly published as GIS products. Mapping Canadian heritage institution's within a GIS improves our ability to: visualise and interpret to clients the relative magnitude of their local hazards, make ties to more refined local analyses, and show adjacencies to mapped historical events. From a national perspective the GIS can generate profiles of aggregated institutional exposure to the hazards, and more readily identify sub-populations of institutions for which particular risks would rank higher or lower among their concerns.

This improves CCI's preventive conservation advisory service's perspective on mappable risks for any institution we deal with as clients. Ultimately, through federal initiatives in open data, it is our intention that client groups can look at the GIS for the purpose of educating themselves on hazards they would want to prepare for.

Keywords

Canada, cultural heritage institution, hazard, risk, GIS

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